ЎТКИР ПАНКРЕАТИТНИ ТАШХИСЛАШ ВА ЖАРРОҲЛИК ДАВОЛАШДА НУРЛИ ҲАМДА ЭНДОВИЗУАЛ ТЕХНОЛОГИЯЛАРНИНГ САМАРАДОРЛИГИ

EFFECTIVENESS OF IMAGING AND ENDOVISUAL TECHNOLOGIES IN THE DIAGNOSIS AND SURGICAL TREATMENT OF ACUTE PANCREATITIS

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Background and Rationale.

Acute pancreatitis remains one of the most urgent abdominal emergencies worldwide, characterized by high complication rates, disability, and mortality. The variability of its clinical course and the insufficient clarity of early clinical signs complicate timely diagnosis and selection of optimal treatment tactics. In Uzbekistan, the incidence of acute pancreatitis has increased in recent years, largely attributable to cholelithiasis, dietary changes, and metabolic disorders. In routine practice, diagnostics are often limited to conventional clinical and ultrasound methods, restricting early detection of severe disease forms. Modern imaging technologies — computed tomography (CT) and magnetic resonance imaging (MRI) — alongside endovisual methods, including endoscopic ultrasound and minimally invasive endoscopic interventions, have acquired pivotal importance in diagnosis and treatment planning. However, integrated algorithms combining these modalities in local settings remain insufficiently studied.

Objective.

To evaluate the diagnostic and clinical efficacy of imaging and endovisual technologies in acute pancreatitis and to develop an optimized treatment algorithm based on minimally invasive navigation-guided puncture and endovisual interventions.

Materials and Methods.

One hundred and seventy patients with acute pancreatitis (January 2020 – December 2025) were enrolled at the Samarkand State Medical University multidisciplinary clinic and the Samarkand branch of the Republican Scientific Center of Emergency Medical Care. The cohort comprised 91 patients (53.5%) with alimentary-induced pancreatitis and 79 patients (46.5%) with biliary etiology. Patients were stratified by the Balthazar–Ranson CT severity index and further subdivided by the presence of aseptic (Group A, n=53; 58.2%) or infected necosis (Group B, n=38; 41.7%). Treatment modalities included conservative management, minimally invasive

interventions (MII), and open surgery. Statistical analysis employed χ^2, Fisher's exact test, and Student's t-test.

Results.

Minimally invasive interventions were performed in 37 patients (40.6%): videolaparoscopic lavage and drainage in 15 patients with aseptic acute pancreatitis (21.1%), and percutaneous drainage under ultrasound guidance in 22 patients with infected pancreatic necrosis (22.5%). Endoscopic papillosphincterotomy (EPST) was performed in 29 patients with acute biliary pancreatitis within the first 24 hours of admission, effectively relieving biliary and pancreatic duct hypertension in all cases.

Mortality in Group A (aseptic necrosis) was 5 patients (9.4%). In subgroup A2 (open surgery), mortality reached 17.7%, significantly exceeding subgroup A3 (minimally invasive): 6.3% ($p<0.05$). In Group B (infected necrosis), overall mortality was 23.7%; subgroup B2 (open surgery) recorded 29.5% versus 19.0% in subgroup B1 (minimally invasive) ($p<0.05$). MRI/MRCP proved the most informative modality for assessing extrahepatic biliary duct status, detecting cholangiectasia, microlithiasis, and biliary sludge.

Table 1. Comparative outcomes by treatment modality in acute pancreatitis.

Subgroup	n	Mortality	p
A1 – Conservative only	20	0%	—
A2 – Open surgery (aseptic)	17	17.7%	<0.05
A3 – MII (aseptic)	16	6.3%	<0.05
B1 – MII (infected)	21	19.0%	<0.05
B2 – Open surgery (infected)	17	29.5%	<0.05

Conclusion.

CT with contrast enhancement is the primary diagnostic modality for assessing acute pancreatitis severity, identifying pancreatic necrosis and local complications.

MRCP is superior for biliary tract evaluation. Minimally invasive interventions are the preferred treatment for severe aseptic pancreatitis, reducing mortality by 2.8-fold compared to open surgery (6.3% vs. 17.7%). EPST performed within 24 hours effectively resolves biliary and pancreatic hypertension in acute biliary pancreatitis. Integrating imaging-guided minimally invasive technologies into standard treatment protocols significantly improves clinical outcomes and reduces hospital stay.

Key words: acute pancreatitis, computed tomography, MRCP, minimally invasive interventions, endoscopic papillosphincterotomy, pancreatic necrosis, surgical treatment, mortality.